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June 1, 1994

HAND DELIVER

Mr. William Caton
Acting Secretary
Federal Communications Commission
1919 M Street, NW #222
Washington, DC 20554

Re: GEN Docket No. 90-314
PP Docket No. 93-253
Ex Parte Presentation

Dear Mr. Caton:

Pursuant to Section 1.1206 of the Commission's rules, this letter is to advise you that in my capacity as counsel to PCS Action, Inc., a coalition of companies to promote the deployment of PCS services, I met yesterday with Commissioner Susan Ness, as well as Mr. Greg Vogt and Ms. Rozalind Allen, of Commissioner's Ness' staff. Also at the meeting were Mr. Jeff Rosenblatt of Comsearch, Inc., Mr. E.Y. Snowden of American Personal Communications, Mr. Mark Roberts of Alex Brown & Sons, and Mr. Mark O'Connor of Piper & Marbury. At the meeting, we discussed PCS Action's position with respect to the Commission's reconsideration of its Second Report and Order in GEN Docket No. 90-314, as reflected in PCS Action's previous filings in that proceeding. In addition, we handed out the following written materials, attached hereto:

- "PCS Action Seminar"
- "Membership Roster"
- May 27, 1994 Letter of PCS Action to William F. Caton
- "PCS Action's Position on Reconsideration of Docket No. 90-314"
- "A Vision Of The Future"
- "White Paper On PCS Spectrum Issues"

We also discussed the recent PCS band plan of Motorola, focussing on PCS Action's position on cellular eligibility, spectrum parity between PCS and cellular spectrum, i.e.,

that 25 MHz of cellular spectrum is worth 40 to 65 MHz of PCS spectrum,and the problems associated with a post-auction divestiture rule for in-region cellular eligibility. Lastly, we discussed financing designated entity licensees and other designated entity participation in PCS, including the possibility of creating opportunities for designated entities by holding back either a preference or set-aside license until after other licenses in the region have been auctioned.

In accordance with the Commission's rules, I hereby submit one original and one copy of this letter.

Sincerely,

Ronald L. Plesser

Enclosures
cc: Commissioner Susan Ness
Mr. Greg Vogt
Ms. Rozalind Allen

PCS *ACTION, INC.*

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PCS *ACTION* Seminar

May 31, 1994

Agenda

I.

Allocation of 30 MHz per PCS licensee is essential to permit the industry to realize the vision of PCS that consumers demand.

Ronald L. Plesser, PCS Action

E.Y. Snowden, American Personal Communications

II.

Microwave incumbency is a reality that would delay PCS for years if allocations are less than 30 MHz.

Jeff Rosenblatt, Director of PCS

Comsearch, Inc.

III.

Markets will not fund the PCS industry unless it is structured to be viable from the outset.

Mark A. Roberts, Communications Research Analyst

Alex Brown & Sons

PCS *ACTION, INC.*

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Membership Roster

Service Provider Members:

- American Personal Communications/
  The Washington Post Company
- Associated PCN Company
- Cox Enterprises, Inc.
- Crown Media
- MCI Telecommunications Corporation
- Omnipoint Corporation
- Times Mirror Cable Television, Inc.
- Time Warner Telecommunications

Manufacturing Members:

- Motorola Inc.
- Northern Telecom
- QUALCOMM, Inc.

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May 27, 1994

HAND DELIVER

William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, N.W., Room 202
Washington, D.C. 20554

Re: Ex Parte Presentation
PCS Licensing Plan
GEN Docket No. 90-314

Dear Mr. Caton:

Throughout the proceedings on the reconsideration of the Commission's PCS Second Report and Order, PCS Action has asserted that the allocation of spectrum for new PCS services must be accomplished in a way that enables rapid rollout *and* new entrant viability, which will engender effective competition to existing wireless and wireline providers. Over the course of the past several weeks, many licensing plans have been proposed and debated. PCS Action submits this letter to underscore that whatever plan is finally adopted, the Commission must further clarify and develop policies to ensure that the plan does not block the emergence of new competitive entrants in PCS or create a tremendous level of uncertainty in PCS. In particular, the Commission's rules must affirmatively prevent in-region cellular operators from impeding competition from new PCS operators.

Some of the proposals would give the in-region cellular industry a significant competitive advantage. It has been proposed that they be given the opportunity to obtain 10 MHz licenses in the lower bands, which is of obvious and immediate benefit. Moreover, we understand that others are proposing that cellular be given an overall wireless spectrum allocation aggregation cap of 40 MHz rather than 35 MHz as provided in the PCS Second Report and Order. As discussed below, this would permit cellular to effectively block independent PCS operators from aggregating 40 MHz licenses when required or appropriate for effective competition in certain regions of the country.

The Commission must ensure that the promise of PCS as an independent competitor to the current in-region cellular duopolies is preserved. The Commission's final allocation plan needs to be accompanied with bright-line standards, as discussed below, and a policy dedicated to keeping in-region cellular interests from destroying meaningful PCS competition. These must include: (i) continuation of the FCC's current five percent attribution rule; (ii) a prohibition on all other relationships between in-region cellular and PCS other than a carrier-user relationship; (iii) a prohibition on disaggregation of PCS licenses, particularly the 30 MHz licenses; and (iv) a cap of 35 MHz per region for in-region cellular companies.

Five Percent Attribution Should be Maintained.

The Commission should continue to adhere to the cellular eligibility rules advanced in the PCS Second Report and Order. In particular, it is important to confine in-region cellular participation. In addition, the five percent attribution rule *must* continue to apply to in-region cellular companies. A more lenient attribution standard would simply lead to in-region control through consortia. For example, with a 20 percent attribution rule, five cellular companies with 20 percent could own and operate a de facto nationwide license across each of the five regions. Although one member of PCS Action has in the past advocated a 20 percent attribution standard, it was proposed only as a substitute to the 10 MHz set-aside at 2.1 GHz, in order to allow non-dominant cellular companies limited lower band participation in PCS. It was certainly never intended to permit cellular to gain *additional* PCS spectrum nor as a means for cellular to outbid a designated entity under the guise of 19.9 percent ownership. The five percent rule must be maintained, particularly if in-region cellular firms are eligible to participate in licenses in the lower bands.

Limit the Relationship Between In-Region Cellular and PCS Licenses.

The Commission should also take into account the ability to evade the cellular eligibility proscription through non-equity relationships. For example, the cellular operator could control the activities of an otherwise independent PCS licensee through financing agreements. Similarly, the current rules would permit in-region cellular to build, operate, and manage supposedly "unrelated" PCS licenses. Therefore, the eligibility restrictions should be clarified to prohibit all relationships between in-region cellular and PCS other than carrier-user relationships. Such a restriction would in no way prevent cellular or other financing or management agreements, so long as the in-region cellular operator is not involved.

Prohibit Disaggregation.

The licenses provided by the FCC should not be subject to disaggregation. In particular, in-region cellular companies must be prevented from using PCS spectrum from any PCS license other than a single 10 MHz license. PCS Action advocates flexible use through joint ventures of PCS spectrum among new entrants in order to achieve speedy and more viable competition in the wireless market.[1] But, breaking up an independent PCS licensee in order to give more spectrum to the cellular duopolist makes the market less competitive, not more competitive.

The argument against disaggregation would also apply to the plan that Motorola proposed two days ago, which would allocate three 30 MHz and three 10 MHz licenses in the lower part of the emerging technologies bands. Such a plan, for example, coupled with a 40 MHz aggregation cap for in-region cellular, would be particularly egregious if the Commission were to permit disaggregation of 15 MHz of any of the 30 MHz licenses. Not only would this permit the cellular operator to gain an additional 15 MHz of spectrum, it would effectively break up a 30 MHz license that could have been used to provide viable competition to the cellular operator.

Moreover, even partitioning a 10 MHz license to permit the cellular incumbent to aggregate 15 MHz also would fortify cellular's duopoly. It is equally dangerous because it allows an in-region cellular operator to take away the ability of other competitors to create 40 MHz licenses, which PCS Action has always believed is necessary in microwave congested areas. This is particularly the case since cellular has no technical or operational need to have a 15 MHz rather than a 10 MHz license.

Under the proposed Motorola plan, the 10 MHz licenses could be an attractive "plum" in the bidding between independent 30 MHz PCS operators and the in-region cellular operators. The ability to disaggregate this "plum" would allow the cellular industry another tool to prevent the creation of competitive PCS licenses, potentially blocking a new entrant's ability to provide service. This post-auction option would have significant disruptive effects on legitimate auction strategies and may reduce auction revenues.

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1 PCS Action has proposed permitting *lower band* licensees seeking to aggregate to 40 MHz to lease or otherwise obtain portions of spectrum from *other lower band* licensees. Under the Commission's current plan, in-region cellular operators would be eligible only for upper band spectrum -- *not* for lower band licenses.

Cap In-Region Cellular at 35 MHz.

Underlying the concept of disaggregation is to enable cellular as well as new entrants to obtain 40 MHz of spectrum. This is not parity. Forty MHz for in-region cellular (25 MHz of clear spectrum in the 800 MHz band and an additional 15 MHz of PCS spectrum) is not equivalent to 40 MHz of encumbered PCS spectrum proposed for new entrants. Parity in the wireless market certainly does not demand that cellular receive an additional 5 MHz, since cellular already enjoys numerous advantages over PCS entrants.

First, the 25 MHz of clear spectrum allows cellular far more capacity than the 30 or 40 MHz of PCS spectrum congested with microwave incumbents. Independent spectrum engineers have proven that 25 MHz of clear spectrum at 800 MHz is the equivalent of 50 MHz of clear spectrum at 1800 MHz. The enormous cost and time for microwave relocation is itself a significant advantage for cellular.

Second, the auction prices to be paid by new PCS entrants for the spectrum are a competitive cost advantage for cellular, since many paid nothing for the 25 MHz of clear spectrum obtained under the Commission's wireline set-aside policy or through lotteries.

Third, independent PCS operators, before they construct the first antenna, will be forced into competition with cellular operators with an existing wireless infrastructure and customer base. Further, in-region cellular operators that have a true interest in participating in PCS are fully able to do so outside of the region they now dominate. Therefore, whatever management, marketing, or technical expertise that cellular may bring to PCS can be exercised using 40 MHz outside of their cellular regions.

Last, unlike PCS entrants that may need to aggregate spectrum in order to operate around microwave incumbents, cellular has no technical or operational need for 15 MHz rather than 10 MHz of PCS spectrum as stated above.

****

PCS Action is committed to a licensing scheme that reduces uncertainty and positions PCS for rapid and viable entrance into the wireless market. However, under any PCS licensing plan, especially one that would permit cellular eligibility in the lower

bands, competition in the wireless market will be realized only if the Commission enforces a policy that protects new entrants in the PCS spectrum with strong preventive rules.

Sincerely,

Ronald L. Plesser
Counsel to PCS Action, Inc.

RLP/pq
Enclosure
cc: Honorable Reed Hundt
Honorable James Quello
Honorable Andrew Barrett
Honorable Rachelle Chong
Honorable Susan Ness
Mr. Ralph Haller
Mr. Thomas Stanley
Mr. Don Gips
Mr. Robert Pepper
Mr. Michael Katz
Mr. Gerald Vaughan

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Membership Roster

- American Personal Communications/
  The Washington Post Company
- Associated PCN Company
- Cox Enterprises, Inc.
- Crown Media
- MCI Telecommunications Corporation
- Omnipoint Corporation
- Times Mirror Cable Television, Inc.
- Time Warner Telecommunications

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PCS Action's Position on Reconsideration of Docket No. 90-314

PCS Action urges the Commission to retain the key elements of its PCS *Second Report and Order*, including the designation of two 30 MHz licenses in Major Trading Areas ("MTAs"). The allocation of adequate spectrum to independent PCS licensees is crucial to providing effective competition to existing wireless and wireline providers.

The Commission, as it has done, must establish a PCS licensing scheme that is workable from the outset. The practicality and market viability of the Commission's licensing scheme cannot depend on a slow and inefficient aftermarket of gradual aggregation.

The amount of spectrum allocated to each PCS license block will critically affect both the *timing* of PCS deployment and the *viability* of PCS as an industry. Without adequate spectrum, delays in clearing spectrum would keep PCS from being launched until the end of the decade. By then, PCS could find itself chasing a market that existing service providers will have consolidated within existing monopolies and duopolies. The window of competitive opportunity would close, and the loser would be the American public with less competition, fewer jobs, and a small vision of PCS.

Recognizing this, NTIA recommended allocation of 30 MHz blocks, and the Commission has decided to issue two 30 MHz PCS licenses in MTA service areas. This will create greater certainty that an economically viable system will be created.

Frequency parity with incumbent wireless telecommunications providers also is essential if new PCS entrants are to provide effective competition. In-region cellular interests are entering the PCS era with 25 MHz of spectrum clear of microwave incumbents and will have the ability to bid for an additional 10 MHz of PCS spectrum in their cellular markets. Under the Commission plan, this will give cellular incumbents a total of 35 MHz. Independent PCS licensees would have just 30 MHz of spectrum encumbered by existing users, which is the minimum amount of spectrum needed to establish frequency parity.

To provide all potential licensees with 20 MHz of spectrum would result in the in-region cellular incumbents having a total of 45 MHz of spectrum. Independent licensees would be left with only 20 MHz. This disparity would jeopardize the rollout of PCS and crush the potential for new competition.

PCS must be licensed in blocks of 30 MHz or greater for the following reasons:

- Core markets are effectively blocked by existing microwave users (two way, 10 MHz each way), making service fatally defective in allocations of less than 30 MHz until all relocations have been accomplished.

- Incumbents have an absolute right to stay for three years (five years in the case of public safety, which constitutes 20 to 25 percent of all incumbents). Relocations will be time-consuming and difficult; five relocations per year per PCS licensee is the maximum that can be expected.

- Therefore, rolling out a competitive PCS service, even with an extremely aggressive relocation process, will require at least 30 MHz. The FCC has estimated that $5 billion annually would be saved by consumers if cellular had effective competition.

- PCS also will never have the capacity to compete with local exchange carriers unless it has at least 30 MHz per licensee. Mercury One-2-One, which is attempting local loop competition in London, is at capacity in residential areas with 30 MHz of clear spectrum after only months of operation just because of the capacity needed for residential voice traffic.

- Equipment manufacturers support the need for licenses of at least 30 MHz.

- A licensing scheme predicated on the aggregation of 20 MHz splinters would delay and obstruct the creation of a viable independent PCS industry. It also would significantly reduce PCS auction revenues to the federal government. The FCC has an obligation to issue viable licenses in the first instance.

The FCC's allocation plan in the *Second Report and Order* has the dual virtue of competition and of workability at the outset. It results not in the *beginning* of deployable PCS systems, which must be completed through accumulation of "building blocks," but rather in *readily deployable and competitive* PCS systems. It should be maintained.

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September 8, 1993

A VISION OF THE FUTURE

The FCC faces a choice in the creation of new personal communications services ("PCS"). This is a choice of visions. Will PCS fulfill the vision of new wireless networks as an integral part of the new national infrastructure or will it be a little frosting on the cake of existing mobile voice services?

The members of PCS Action -- telecommunications equipment manufacturers, entrepreneurs, multi-media companies, an interexchange carrier and a cellular service provider -- believe the choice is clear:

> An expansive vision of PCS will best serve the public interest and the dynamic needs of American telecommunications in the 21st century at a low cost by providing high-quality digital wireless communications to a mass market (60 million Americans within the next ten years).

The needs of American telecommunications in the 21st century are best served by a PCS industry capable of providing not only wireless and portable voice communications but increasingly sophisticated (though still inexpensive enough for a mass market) data and video transmission services as well.

This expansive vision requires a system of high-capacity, wide-area wireless networks: a system of 40 MHz licenses in large license areas.

Such a system would introduce vigorous competition into the wireless telecommunications market, saving the consumer billions of dollars and encouraging the service innovations that will keep the United States in the forefront of this burgeoning global industry.

Make no mistake: those who say they share this vision, but then demand limited band width and many small licenses, are either being short-sighted or disingenuous.

This has been the position of the Cellular Telecommunications Industry Association ("CTIA"). They have

two goals: one is to obtain additional spectrum for themselves and the second is to limit the creation of wireless services that will compete with them in a meaningful way. Nine cellular companies control 90 percent of today's cellular subscribers in the United States in large regional areas with license allocations of 25 MHz of clear spectrum.

It is not surprising, therefore, that the CTIA not only wants its members to get a total of 45 MHz but is promoting that the new competitors have only 20 MHz of cluttered spectrum broken down into 734 MSAs and RSAs and that there be so many of these fractionalized licenses in each market that none will be well financed. The consistent theme throughout their recently submitted "white papers" is to limit and fractionalize the emergence of competitors to these services. In our view, their statements have contained many misstatements and exaggerations.

The promise of new technologies has been realized by some in our society, but not by all. Cellular services are used by approximately 12 million Americans. The cost of cellular services remains outside of the grasp of most Americans today even as cellular provides the promise of digital communications tomorrow.

The vision of PCS shared by PCS Action members includes small, low-power telephones and data devices that can be shared by millions of individuals in a market with little capacity limitation. They will, therefore, be available to the mass market at mass market prices. This means 60 to 70 million PCS customers. Cellular prices, too, will come down as a result of competition.

This vision includes making routine the ability to perform any communications task at the time and place of one's choosing. It includes, for example, a portable newspaper with voice and video built in. A person in an office, in a car, in a train, in a house, or on a boat could, through the use of a portable device, call up a favorite newspaper, magazine, or new form of data service. The information would be current as of the time of the use, not as of when the newspaper went to press.

The choices faced by the Commission entail risks. On the one hand, the risk is that the Commission may grant more spectrum to PCS providers than they may ultimately need. We believe that this will not be the case and have demonstrated that even after microwave congestion is eased, 40 MHz will be necessary to enable PCS both to provide new data and imaging services and to compete with the local loop.

On the other hand, the risk of granting too little spectrum is that PCS will be stopped before it can even start. Too little spectrum will mean too little investment, too much interference with existing microwave users, too little channel capacity to accommodate a mass market, and too little band width to make possible the wireless data and video transmission services that are part of the PCS promise. Again the choice is clear.

The amount of spectrum allocated to PCS will critically affect the timing of PCS deployment, which in turn will determine the viability of PCS as an industry. Delays in clearing spectrum due to a limited spectrum allocation will keep PCS from launching until the end of the decade. By then, PCS may find itself chasing a market that the current cellular duopolists will have captured. The loser here would be the American public with less competition, fewer new jobs, and a small vision of PCS. The choice is clear: to create PCS as a big vision.

Forty MHz Per License

Of all the issues facing the Commission as it authorizes personal communications services, the most crucial are the size of the spectrum allocation to be authorized for PCS licensees and the size of the market areas.

The amount of spectrum PCS licensees will be permitted to utilize will determine the number of Americans who can be served by PCS and the cost of that service, the speed with which PCS will be deployed, the voice quality PCS will be able to attain, whether highly demanded PCS data transmission will be feasible, and whether PCS will be a viable competitor to cellular telephony and, ultimately, the local exchange -- in short, whether PCS will succeed or fail.

The members of PCS Action believe strongly that an allocation of 40 MHz per PCS licensee is necessary. An allocation of 40 MHz per licensee is not excessive or extravagant; it is simply the allocation that the science underlying PCS demands. Many of the major manufacturers that will design and build PCS equipment agree that a 40 MHz assignment per licensee is imperative to permit PCS to be implemented quickly and efficiently in the United States, particularly given the Commission's Emerging Technology decisions grandfathering incumbent public safety microwave systems. This allocation is consistent with the vision American consumers hold for PCS, as well as with PCS assignments by our international competitors, which are moving ahead to implement PCS this year with allocations of clear

spectrum that are effectively larger than any option being considered by the Commission.

CTIA has taken particular aim at this issue, and has sought to attack the foundation of the 40 MHz argument and has asserted that 20 MHz is sufficient. They in particular accuse PCS Action of manipulating a study done by COMSEARCH. They base their attack on subsequent studies completed by COMSEARCH for Bell Atlantic and GTE. Attached to this paper is a detailed refutation of CTIA's attack of the April COMSEARCH study. The studies are totally consistent and indicate that 20 MHz licenses would significantly delay the introduction of PCS services. Moreover, the studies indicate that PCS will be implemented more rapidly and effectively with 40 MHz licenses.

Again, it is not surprising that CTIA is seeking 20 MHz for each license. That will result in 45 MHz for them if they obtain licenses and, for everyone else, 20 MHz of cluttered spectrum that will never be totally clear given the presence of public service users.

Size of License Area and Number of Licenses Issued

The size of the license area and the number of licenses assigned in each license area are additional important issues. Licenses should be assigned on the basis of large areas; MSAs, RSAs, and BTAs are far too small. It would be counterproductive to build a national infrastructure from many small license areas that are simply traded in a private auction after the public auction has taken place.

This was the case with cellular where 734 licenses were issued. Nine companies now control more than 90 percent of today's cellular subscribers in the United States. This consolidation was done in post-license acquisitions. The same thing might happen in PCS if too many small licenses are awarded. But, even if PCS can overcome obstacles never faced by cellular -- that is, consolidating while competing against entrenched wireless providers already in place -- this method of achieving large service areas is terribly inefficient and results in speculators pocketing sums lost forever to the federal treasury.

PCS can succeed only if it is able to realize the economies of scale that have proven necessary in the existing wireless industries. As the annual reports of various cellular providers show, wider area systems cost less to operate. The key to operating economies is a large service area.

Moreover, today's consumer expects wireless services to be completely mobile. Consumer demand has led cellular

evolution to wider geographic coverage with increasing movement toward the development of seamless nationwide roaming capabilities. Major providers of wireless services recognize that the geographic scope of their service must keep pace with consumer expectations. For example, in disclosing last month the nation's fifth largest merger ever, AT&T and McCaw announced their goal of nationwide wireless service.

Thus, large geographic areas for PCS are competitively essential. PCS cannot provide the effective price and service competition to existing mobile service providers if PCS is marginalized in small, ineffective licensing areas.

Moreover, each PCS market should be served by two, or at most three, PCS licensees. PCS will be launched in a market already dominated by wireline and cellular telephone services. Balkanizing PCS by issuing too many licenses would keep any PCS licensee from competing effectively. Too many licenses would consign our new industry to the margins of the marketplace. The very first page of CTIA's fourth so-called "white paper" illustrates the marginalization that would occur and the weak competition to entrenched service providers that would result from too many PCS licenses.

The issuance of too many PCS licenses will also slow service to the public. As the number of PCS providers grows, unit costs to the providers rise, or service quality declines, or both. As a consequence, licensees will conclude that their potential offering is not a viable business and will either withdraw from the market or seek to consolidate efforts with other licensees. The net effect is to delay entry and service to the public.

PCS License Eligibility

The rapid deployment of new technologies and the development of a new telecommunications infrastructure are critical national goals. PCS is an important element of both goals and could add significantly to the level of competition in less-than-fully-competitive telecommunications services markets, thereby benefitting the public. In particular, PCS could provide LEC-equivalent wireless local loop services and services competitive with the services currently provided by cellular. The encouragement of competition is a long-standing Commission goal.

Simply stated, existing cellular service providers do not have any incentive to fully develop services that will compete with the services they already provide. PCS Action believes that the Commission should adopt rules prohibiting potential PCS competitors from being eligible to hold a PCS

license in the markets where they provide and dominate competing services.

PCS Action believes that the FCC must take steps to ensure that PCS is a competitive service providing diversity in wireless communications. Because competition is nullified when an entity is pitted against itself, PCS Action believes that cellular incumbents and their affiliates should be free to apply for PCS licenses anywhere in the country except in their home region. A cellular incumbent or its affiliate should be able to apply for a PCS license only if the applicant serves less than 20 percent of the population to be served by the PCS license.

PCS Action's position on cellular eligibility echoes the recommendations of key federal agencies, which uniformly favor prohibiting cellular companies from bidding on PCS licenses covering their own service areas:

National Telecommunications and Information Administration:

> "[W]e recommend that the Commission promote competition among PCS and cellular providers by initially prohibiting the acquisition of PCS licenses by cellular providers in their own service areas . . . . [T]he Commission should review this limitation, in light of subsequent market developments, three years after initially assigning PCS licenses."1/

U.S. Department of Justice:

> "[T]he FCC should not at this time permit any firm to control both a cellular and a PCS license in the same geographic area. That restriction, which should be reexamined in a definite time period (e.g., four years), we believe, should apply equally to both wireline and non-wireline cellular licensees."2/

1/ Comments of the National Telecommunications and Information Administration at 27, FCC GEN Dkt. No. 90-314 & ET Dkt. No. 92-100 (Nov. 9, 1992).

2/ Comments of the U.S. Department of Justice at 29-30, FCC GEN Dkt. No. 90-314 & ET Dkt. No. 92-100 (Nov. 9, 1992).

U.S. General Accounting Office:

> "In allocating the spectrum and granting licenses for the new personal communications services, the FCC should consider establishing a policy that gives first preference to firms that are not current cellular telephone service providers in a given market area . . . ."3/

The benefits that could be brought to PCS by experienced cellular service providers, moreover, would not be lost by adoption of this proposal. A cellular licensee and its affiliates barred from becoming a PCS licensee in one market would be eligible in other markets where it did not have an overwhelming presence. An out-of-region cellular licensee would have a greatly diminished incentive and opportunity to conduct its PCS operations in an anti-competitive manner, and therefore, should not be barred from participation under all circumstances.

Conclusion

The vision of a new competitive voice and data network requires the allocation of 40 MHz of spectrum for large market areas. The primary opposition to this proposal has been from various entrenched incumbents seeking to protect themselves from effective competition.

The public interest here dictates the creation of rules that will foster the vision of PCS as a large scale voice and data service available to a mass market. There must be 40 MHz licenses in large service areas to realize this vision.

3/ U.S. General Accounting Office, "Telecommunications: Concerns About Competition in the Cellular Telephone Service Industry" at 42 (GAO/RCED-92-220 July 1992).

PCS ACTION, INC.

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WHITE PAPER ON PCS SPECTRUM ISSUES

July 21, 1993

Of all the issues facing the Commission as it authorizes personal communications services ("PCS"), the most crucial is the size of the spectrum allocation to be authorized for PCS licensees. The amount of spectrum PCS licensees will be permitted to utilize will determine the number of Americans who can be served by PCS, the speed with which PCS will be deployed, the voice quality PCS will be able to attain, whether highly demanded PCS data transmission will be feasible, and whether PCS will be a viable competitor to cellular telephony and, ultimately, the local exchange -- in short, whether PCS will succeed or fail.

The members of PCS Action -- telecommunications equipment manufacturers, entrepreneurs, multi-media companies, an interexchange carrier and a cellular service provider -- believe strongly that an allocation of 40 MHz per PCS licensee is necessary. Those who advocate lesser allocations are merely attempting to prevent PCS from reaching its full potential in the marketplace, or fundamentally misunderstand the nature of PCS and the constraints facing its implementation in a shared spectrum environment. An allocation of 40 MHz per licensee is not excessive or extravagant; it is simply the allocation that the science underlying PCS demands. The major manufacturers that will design and build PCS equipment -- including Motorola, Northern Telecom, Omnipoint and Qualcomm -- agree that a 40 MHz assignment per licensee is imperative to permit PCS to be implemented in the United States, particularly given the Commission's Emerging Technology decisions grandfathering incumbent microwave systems. This allocation is consistent with the vision American consumers hold for PCS, as well as with PCS assignments by our international competitors, which are moving ahead to implement PCS this year with allocations that are effectively larger than any option being considered by the Commission.

I.
The American Vision for PCS

The decisions surrounding the implementation of PCS need not be made in a vacuum. The PCS industry has undertaken some 200 PCS technical and marketing experiments and has conducted a significant amount of research into the characteristics American consumers will demand of PCS. Each study establishes conclusively that American consumers will embrace a PCS that is fully featured and would reject any vision of PCS that delivers less.[1/] American consumers demand high-quality voice and data services, high capacity, high-speed handoff, and wide-area coverage -- PCS with a capital "P". Systems offering only small service areas because of limited spectrum would be rejected out-of-hand by the American consumer.

Studies emphasize the importance for PCS of broad coverage, high voice quality, full functionality, and data applications.[2/] Affordability and accessibility boosts usage of PCS services,[3/] and the successful introduction of PCS will mean an acceleration in the penetration of all wireless services.[4/]

International experience with the actual implementation of PCS corroborates the results of American PCS experimenters. In the United Kingdom, for example, four CT-2 licenses were issued in 1989 and only one CT-2 licensee now survives. CT-2 licensees could provide only services with limited coverage, mobility, and functionality. Licensees were unable to provide the full-fledged wireless services British consumers, like American consumers, demand.

These findings have led telecommunications companies developing PCS services to plan the deployment of affordable services that will enable individuals to communicate

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1/ See PCS Trial Results: A Telocator Survey 1 (1993) ("users chafe at coverage restrictions and broad coverage is the top priority for trial participants . . . users want cellular-like service -- including two-way calling and the ability to hand off -- priced lower than cellular").

2/ See, e.g., id. at 1 & 4; Deloitte & Touche, User Perspectives on the Future of Wireless Communications (1992).

3/ See, e.g., American Personal Communications, Seventh Progress Report, FCC File No. 2056-EX-ML-91 (April 28, 1992).

4/ See, e.g., Deloitte & Touche, supra, at 6.

independent of location, access method, and information format, with a maximum of user call management control.

Multi-feature PCS services are projected to be available to individuals at any location, whether at home or office, or in transit or in public. PCS services will evolve from secure, high-quality voice and text transmission with national roaming, to fixed and mobile ISDN data, telemetry, broadband data, advanced intelligent network services, and multimedia. They will facilitate the freedom, security, efficiency, and control that result from specialized personal and business mobility.

PCS will mark the forefront of universal personal telecommunications services in which any communication an individual needs -- whether in high-quality voice, wideband data, or multimedia -- is available from any point.

II.
The Realities Facing PCS Implementation

PCS will be authorized in a band that now is populated by some 10,000 private operational fixed microwave users. These incumbents include, in the main, utilities, public safety licensees, governmental entities, and the railroad and petroleum industries. These interests have fought vigorously and effectively before Congress and the Commission for the right to remain in the 2 GHz band, protection from interference, and compensation for relocating microwave links. Even assuming full cooperation by both microwave and PCS licensees, however, the relocation process will span a number of years.

The Commission has decided to grandfather public safety and certain other licensees permanently and to require a "transition period" of three years before any other microwave incumbent can be relocated from the band involuntarily.[5/] After the expiration of the "transition period," incumbents can be relocated involuntarily but only with the PCS licensee paying all the expenses of relocation (estimated at between $135,000 and $250,000 per path). Before the expiration of the "transition period," a PCS licensee can relocate an incumbent only by persuading it to relocate voluntarily -- that is, by paying it whatever the market will bear in exchange for it vacating frequencies needed for PCS. Even involuntary relocation is to be handled on a case-by-case basis, and is likely to be a lengthy process at best.

5/ See Procedures Adopted for Emerging Technology Access to 2 GHz Spectrum, FCC ET Dkt. No. 92-9 (News Release July 15, 1993).

The presence of incumbents that either will remain permanently in the 2 GHz band or that cannot be relocated for a period of years raises two key issues. First, how much spectrum is required to permit PCS licensees to inaugurate PCS, during the "transition period" and beyond? Second, what would a regime under which insufficient spectrum allocations force massive relocations imply for the consumer cost and timing of a nationwide roll-out for PCS?

A.

The Need to Share Spectrum. Every spectrum-availability study that has been performed has found conclusively that PCS spectrum allocations of 20 MHz, or even 30 MHz, would be insufficient for implementation of PCS in major markets. The need for a sufficient amount of spectrum to permit PCS to be implemented in a shared environment is simply a scientific fact of life PCS licensees and the Commission must face.

Early studies found, quite correctly, that there is a substantial amount of unused spectrum in the 140 MHz of the 1.85-1.99 GHz band that is available for PCS.[6/] When the spectrum available in this total of 140 MHz is divided into discrete spectrum blocks, however, and microwave protection criteria now being crafted are applied, microwave congestion can become a true obstacle to PCS deployment. If the available spectrum is sliced too small, there will be significant geographic areas where no spectrum is available for PCS -- even in markets that are critical for effective PCS roll-out.

Sharing technologies have been developed to permit PCS licensees to put unused spectrum to work bringing PCS to the

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6/ See American Personal Communications, Frequency Agile Sharing Technology ("FAST") Report on Spectrum Sharing in the 1850-1990 MHz Band Between Personal Communications Services and Private Operational Fixed Microwave Service (Gen. Docket 90-314, July 1991) (the "FAST Report"); see also National Telecommunications and Information Administration, Spectrum Usage Measurements in Potential PCS Frequency Bands, p. 149 (Washington, D.C.: Dep't of Commerce, NTIA Rep. No. 91-279, 1991) ("the busiest sites in all cities shows 88% of the band unused"). The FAST Report, in particular, found that at least 50 MHz in the 140 MHz band is available for implementation of PCS by "working around" microwave users in the 11 top U.S. markets. Reports by AT&T Bell Laboratories, PerTel, Inc., Digital Spread Spectrum Technologies, and Pacific Telesis also have supported these conclusions.

American public. For any sharing technology effectively to "work around" incumbent users, however, there must be at least some spectrum available. Just as one cannot drive a car around an obstacle if the obstacle blocks the entire road, it is physically impossible for a PCS licensee to share with microwave if all its spectrum is blocked by microwave incumbents.

Under a 20 MHz allocation, for example, one microwave licensee could block PCS from being implemented in a large portion of the geographic area covered by a PCS license.1/ Microwave licensees typically utilize two 10 MHz channels -- a total of 20 MHz -- that will correspond to PCS allocations. (When the use of IF filters on microwave receivers is taken into account, moreover, some microwave users can require interference protection for bandwidths of between 17 and 28 MHz per channel.) Microwave protection criteria, in their current versions, require consideration of systems within 250 miles in every direction. One microwave incumbent, then, can stymie the implementation of PCS for the entire service area of a PCS licensee if spectrum blocks are only 20 or 30 MHz wide. Because there are 10,000 microwave licensees, at least one-quarter of which will be permanently grandfathered, and because these licensees are spread throughout the United States, a 20 MHz allocation for PCS equates to zero spectrum available for PCS in significant portions of the country. The PCS industry would never develop under these constraints, and federal auction revenues for PCS licenses would be minimal.

Studies examining PCS implementation in specific markets confirm this result. In one study, American Personal Communications analyzed each microwave path in each of the largest 11 United States cities for each of the Commission's spectrum allocation proposals -- 40 MHz per licensee, 30 MHz per licensee, and 20 MHz per licensee. The study found that allocations of 20 MHz and even 30 MHz would yield too little

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1/ See Comsearch, Analysis of the 20 MHz, 30 MHz, & 40 MHz PCS Block Allocations, filed with MCI Telecommunications Corp., Comments (Gen. Docket 90-314, Nov. 9, 1992). Comsearch is an independent frequency coordination firm. Comsearch found that a 20 MHz allocation would permit a single microwave effectively to block PCS. Even under a 30 MHz allocation, spectrum within a PCS allocation will be blocked more than 20 percent of the time.

usable spectrum to permit PCS to be deployed.[8] In Chicago, for example, an allocation of 20 MHz results in, depending upon the PCS licensee, between 33 percent and 57 percent of the area not having spectrum available for PCS.

In another study, Cox Enterprises analyzed each microwave path in San Diego, California, and concluded that 20 or 30 MHz allocations would render PCS an impossibility -- 10 of the 24 incumbents in San Diego are public safety licensees, and even a 30 MHz allocation would be insufficient.[9] Other markets show similar results.

Even if microwave paths can be relocated by private negotiation in the near term, the problem of spectrum congestion will not magically disappear. Even assuming that each PCS licensee can relocate the three worst-case microwave links from that PCS licensee's spectrum block in each major market -- which will not be possible in all cases[10] -- the amount of spectrum available for PCS use would increase, on average, only slightly. In Los Angeles, for example, a 30 MHz allocation would yield only an average of 16.9 MHz of useable spectrum even after the three worst-case microwave stations in each PCS licensee's spectrum block had been relocated and a 20 MHz allocation would yield only 12.1 MHz of useable spectrum, on average, under the same circumstances. Included in these averages, moreover, is a significant amount of area in which there would be no spectrum at all available even after all three worst-case microwave users are relocated -- under a 30 MHz allocation, up to 22.9 percent of the geographic area in Los Angeles has no spectrum available for PCS; under a 20 MHz allocation, up to 32.8 percent of the area of Los Angeles has no spectrum available. In Chicago, only 14.2 MHz of useable spectrum, on average, would be available under a 20 MHz

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8/ See American Personal Communications, Report on Spectrum Availability for Personal Communications Services Sharing the 1850-1990 MHz Band with the Private Operational Microwave Service (Gen. Docket 90-314 & ET Docket 92-9, November 1992). Data for this study was obtained from Comsearch and FCC files.

9/ See Cox Enterprises, Inc., Reply Comments, pp. 10-11 & Comsearch Appendix (Gen. Docket 90-314, Jan. 8, 1993).

10/ If any of these licensees is a public safety entity, or would be entitled to remain in the 2 GHz band for technical reasons, or would simply refuse to move during the "transition period," the PCS licensee would be powerless to relocate them and any potential spectrum gains from a theoretical relocation would not be realized.